



NASA STTR 2011 Phase I Solicitation

T7.03 Flexible Polymer Foams Systems for Fireproofing and Energy Absorption

Lead Center: KSC

NASA has a growing need for flexible polymer foams for cryogenic insulation, fireproofing, energy absorption and other aerospace applications. NASA Chemists and Engineers at Langley Research Center and Kennedy Space Center have been developing high performance polyimide foams for the last 15 years or more for such applications with great success in varying densities, addressing cell content and effects on performance properties, and additionally producing composites of such foams with enhanced thermal conductivity. In addressing applications for these high performance foams, it has also been identified that increased flexibility with structural integrity foams are also needed in polyurethane foam systems. Advances in novel approaches to polyurethane foam systems are desired to address increased flexibility, good flame retardancy and acoustic attenuation properties for future vehicle and ground systems. The goal is explore new flexible foam systems that control cell content and offer "breathable" characteristics allowing for foam use in potential ice mitigation in such applications as umbilical systems. Delayed time to ignition, decreased peak heat release rates and smoke generation in non-halogen flame retardancy are also advantageous for response to this solicitation.